PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference AL 0394 PCT/Kr/H	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/EP2005/001772	International filing date *(day/month/year)* 17.02.2005	Priority date *(day/month/year)* 19.03.2004
International Patent Classification (IPC) or national classification and IPC C22B21/06, C22B9/02		
Applicant CORUS TECHNOLOGY BV et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *sent to the applicant and to the International Bureau)* a total of sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand 17.10.2005	Date of completion of this report 27.01.2006
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Swiatek, R Telephone No. +49 89 2399-7261

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2005/001772

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:

   ☐ international search (under Rules 12.3 and 23.1(b))
   ☐ publication of the international application (under Rule 12.4)
   ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-15 as originally filed

Claims, Numbers

1-5 as originally filed

Drawings, Sheets

1/3-3/3 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

   ☐ the description, pages
   ☐ the claims, Nos.
   ☐ the drawings, sheets/figs
   ☐ the sequence listing *(specify)*:
   ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

   ☐ the description, pages
   ☐ the claims, Nos.
   ☐ the drawings, sheets/figs
   ☐ the sequence listing *(specify)*:
   ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2005/001772

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-15
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

1. Prior art

D1: EP-A-1 380 659 (CORUS TECHNOLOGY BV) 14 January 2004 (2004-01-14)
D2: US-B1-6 224 648 (VERDOES DIRK ET AL) 1 May 2001 (2001-05-01)

2. Novelty and Inventive Step (Art. 33 PCT)

The application relates to a method for the purification of a molten metal containing foreign elements e.g. impurities.

Fractional crystallisation is considered to be the closest prior art. In this method a molten metal containing one or more foreign elements is cooled down to just above the eutectic temperature to achieve partial solidification.
In the case of a hypo-eutectic alloy (see e.g. D1), crystals having a purer composition than that of the molten metal are solidified. These crystals can be then separated from the remaining molten metal by means of solid-liquid separation techniques.
In the case of a hyper-eutectic alloy (see e.g. D2), crystals containing foreign elements are solidified. These crystals can then removed from a purer melt by solid-liquid separation techniques.

The method of claim 1 differs from the above method in that the molten metal is cooled to a eutectic point where purified metal crystals and crystals of foreign elements are simultaneously solidified and the crystals of foreign elements are separated from the purified crystals using a solid-solid separation technique.

For hypo-eutectic compositions, the claimed method results in a higher amount of purified metal in comparison to the fractional crystallisation (see description, Table 1). For hyper-eutectic compositions, the claimed method gives a purified product with a considerably lower impurity content (see description, Table 2) in comparison to the fractional crystallisation.

No hint could be found in the available prior art to modify the known method of fractional crystallisation so as to arrive at the claimed invention. Therefore, inventive step is acknowledged.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (SEPARATE SHEET)

International application No.

PCT/EP2005/001772